

AUSTRALIAN HESPERIIDAE. V.

NOTES, AND DESCRIPTION OF A NEW FORM.

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This part contains many extensions of the range of species sent me by several collectors since my paper in These PROCEEDINGS last year. Brigadier W. H. Evans has also forwarded me notes from England.

EUSCHEMON RAFFLESIA RAFFLESIA Macleay, 1827.

Dr. T. Guthrie has caught this butterfly at Wallis Lake (February) and Smith Lake, near Bungwahl (March), thus extending its southern limit about 70 miles.

NETROCORYNE REPANDA Felder, 1867.

The statement by A. W. Scott (Australian Lepidoptera and their Transformations, ii, 1891, p. 13) that "When but a few days old the infant larva cuts a small and perfectly circular piece, about the size of a pea, from the leaf, and attaches it with silken threads to the upper surface of the same or another leaf, thus forming a secure habitation under which it dwells, and from whence it issues in search of food, by a small aperture at the upper end. As the increasing size of the larva demands more roomy accommodation, larger pieces of the leaf are cut out and similarly attached, the old dwellings being then deserted, and as they soon become brown and shrivelled they impart to the tree in time a somewhat diseased appearance. When almost mature the larva selects a larger leaf, and cutting out a sufficient portion to comfortably cover its body, secures this to a fresh leaf." has always seemed to me far from accurate. The circular piece cut out must weigh about five times the weight of the baby larva, and this piece was never found by me away from the circular hole in the leaf, but always beside it.

Thanks to my young friend, Mr. M. F. Day, who kept careful watch over some eggs at Killara, we were able to watch the whole process, and we found that the newly hatched larva was an expert builder.

Mr. Day had previously found that the larvae emerged from the eggs in the early afternoon. On 11th December, 1932, he telephoned me that a larva had just emerged, and by the time I reached his home another had emerged. The following notes are taken from the actions of these two larvae.

The young larva, without eating the empty eggshell, first sought a suitable position on the leaf about an inch away from the egg. It then spun some silk; around this it began to eat out of the leaf, working on the upper surface, a circle nearly one-third of an inch in diameter. The larva was within the circle and did not swallow the portions of the leaf, but deposited them outside the circle. The leaf was not cut through, the veins not being cut at this stage. After cutting for a few minutes the larva would place some more silk within the circle. Although the order in which the parts of the circle were cut was different in the

two cases observed, at the end of about an hour the result was the same. The cut disc was almost a perfect circle except a small portion of the arc about one-tenth of an inch, which was left uncut. On either side of this uncut portion at the ends of the cut circle a further cut was made at right angles to the circumference, extending both inside and outside. Silk strands were then laid from about the centre of the disc across the uncut part to well outside the disc.

The larva then, carefully working from inside the disc, began to cut away the veins, and when the last vein was cut through the disc suddenly sprang to a position of 30 degrees with the leaf. More silk was then stretched from the disc over the uncut portion to the leaf outside. As the silk dried, the disc gradually rose to the vertical and then downwards on to the leaf, the uncut portion being the hinge. As silk had been placed over the disc, it had become dome-shaped by the silk drying. About two hours were occupied in reaching this stage.

The outside of the dome was the underside of the leaf now lying on the upperside of the leaf. This dome was now sealed down with silk, the larva working inside and cutting the upperside of the leaf to give a firm attachment. About four hours were taken for the larva to construct its home. Later a hole was eaten from the side of the house to allow the larva to come out to feed.

Our experience has been that usually only one disc is cut, within which the larva lives until its house becomes too small for it. In two or three cases, apparently only when its home became damaged, another house was made simply by cutting an irregular piece from the edge of the leaf and turning it over.

On July 21, 1934, we went to Narrabeen and Mr. Day fortunately found a larva just beginning its second and final house. From near the middle of the right hand edge of the leaf a long narrow pad of silk is placed extending in a slanting direction nearly to the midrib. Starting slightly nearer the tip of the leaf than the top of this silk pad, the larva ate a long slanting irregular cut out of the leaf, ending it midway between the bottom of the silk pad and the midrib. This cut was eaten quite through, the portions of the leaf were not all swallowed but placed on one side, nor was the cut made in one operation as the larva moved away to strengthen the silk pad. A little more than an hour was spent in reaching this stage. Then the larva went to the edge of the leaf about opposite the end of the first cut and made another irregular cut towards the midrib, ending below the silk pad. It then put long strands of silk between the ends of the two cuts and the cut portion of the leaf began to rise as the silk dried. The larva then extended the two cuts in the direction of the midrib, but kept them a slight distance apart and placed further silk between them. The portion of the leaf between the cuts acts as the hinge on which the cut part is brought over. After a little more than two hours the cut portion was nearly touching the remainder of the leaf. A stout strand of silk was placed from ceiling to floor to anchor the roof. Later on a further short straight cut was made on the portion of the leaf to the left of the midrib, for the purpose of turning it up for the door of the home, the door always being placed looking towards the stem of the leaf. Many stout strands of silk were placed to anchor the roof to the floor and these were strengthened from day to day. Before eating other leaves that portion of the leaf between the entrance of its house and the attachment of the leaf is eaten first, excepting the midrib, then the larva firmly attaches the stem of the leaf with silk to the branch. Larvae have been watched both on *Callicoma serratifolia* and *Endiandra Sieberi*. Although larvae may begin their cutting on

either side of the midrib, I have found more starting on the right than on the left side.

NOTOCRYPTA WAIGENSIS LEUCOGASTER Staudinger, 1889.

Mr. M. J. Manski found at Cairns a full grown larva in a curled-up leaf of *Alpinia caerulea*. He tells me it was green. The pupa was also green with a long hair-like spike extending from the thorax to the posterior end. The food-plant is called "Wild Ginger".

TRAPEZITES ELIENA ELIENA Hewitson, 1868.

Mr. E. O. Edwards has caught this species at Mitchell, Qld., from November to February. This is much further from the coast than any other record.

TRAPEZITES PHIGALIOIDES Waterhouse, 1903.

For the first time I have taken this species and *Trap. iacchoides* at the same locality. Three males of the former and one of the latter species were caught by me within half an hour at Berowra, N.S.W., on 28th October, 1933. It has also been taken at Lawson by Mr. J. C. Macdonald, this being a lower elevation in the Blue Mts. than any yet recorded. It has also been recorded from Stanthorpe, Qld., in October by Mr. W. B. Barnard.

TRAPEZITES PETALIA Hewitson, 1868.

Mr. E. O. Edwards has caught this at Mitchell, Qld., in December. This is much further from the coast than any other record. At Milmerran, Qld., Mr. J. Macqueen, from an egg laid on *Xerotes* in September, bred a male at the end of January. I have carefully searched for it on the Blue Mts. without success.

TRAPEZITES LUTEUS LUTEUS Tepper, 1882.

Mr. J. Macqueen saw an egg in September laid on a species of *Xerotes* near Milmerran, Qld. This was watched and a female emerged on 7th February. Nearby on the same plant was the egg of *Trap. petalia* mentioned previously. Another larva gave a male on 11th March. Mr. Macqueen lent me the cast larval heads and the pupal shells of the three specimens. The heads were rough but not hairy, that of *petalia* mottled with dark and pale brown, that of *luteus* pale brown, sides nearly black and a black vertical median band in front. I could not find any marked differences in the three pupal shells. This butterfly has been caught near Binnaway, N.S.W., in March by Mr. C. F. Garnsey. I find that the apiculus to the antenna is much shorter in *luteus* than in *petalia*.

NEOHESPERILLA XANTHOMERA Meyrick and Lower, 1902.

Mr. T. G. Campbell has taken this at Melville Is., N. Terr., in October.

HESPERILLA MASTERSI Waterhouse, 1900.

The northern range of this rare species has been extended to Mt. Warning, Tweed River, where a male was taken in November by Mr. A. J. Marshall. It has also been caught at Narara, near Gosford, by Mr. L. H. Moss-Robinson in

November. By the efforts of Dr. T. Guthrie and his son, a small area on the cliff edge near Bulli Pass has been found where males are to be seen flying. The butterflies were settled on trees which had grown up from a ledge some twenty feet below the cliff edge. Mr. T. Guthrie found that by shattering a small piece of sandstone on the rocky edge of the cliff, thus spreading the fragments of stone, some butterflies were induced to fly up over the cliff and settle on trees. Here they could be caught with ease. They settled with wings partly depressed and with heads outwards. Many specimens did not settle but flew past too swiftly to be caught. During February and March of this year, with seven collectors we were able to secure twenty males, many of which were in poor condition.

HESPERILLA DONNYSA DILUTA Waterhouse, 1932.

Mr. M. W. Mules has succeeded in finding the larvae of this race at several places in South Australia and has sent me bred specimens from Mt. Lofty, Mylor and Second Valley. Most of these emerged in November. The race is variable in size and the number and size of the spots on the forewings.

HESPERILLA IDOTHEA IDOTHEA Miskin, 1889.

New records are Mt. Warning, N.S.W., a male taken in November by Mr. A. J. Marshall; Bulli Pass, a female in March by Mr. D. F. Waterhouse; Mt. Evelyn, Vict., both sexes in November by Mr. A. L. Brown; and Frankston, Vict., a female in February by Mr. C. Ives.

HESPERILLA IDOTHEA CLARA Waterhouse, 1932.

Mr. M. W. Mules has found a few pupae of this rare race, so I am able to give a description of the hitherto unknown female. In the bred males the elongate pale orange patch on the upperside of the hindwing is very well marked and the hyaline spots of the forewing have a silky sheen in most specimens. On the underside of the hindwing most specimens are without dots, but some have them in areas 2, 3 and 6.

The female has all the spots on the upper side larger than those of the typical race and the hyaline spots are silky. In addition there is an opaque orange spot in 1a one-third from base of forewing, the two outer spots in this area are joined. In the allotype there is an indistinct dot below the subapicals and nearer the termen. On the underside of the hindwing, two specimens have no dots and two a small one in area 2. Mr. Mules bred four females, two of which are before me and photographs of the others. The allotype is from Aldgate, S. Aust., bred 28th November, 1933, and the others from Mt. Lofty, bred from 26th November to 1st December, 1933.

HESPERILLA ANDERSONI Kirby, 1893.

Several males have been taken this year near the top of Bulli Pass in February and early March.

TARACTROCERA DOLON Plotz.

Taract. dolon, Waterhouse, These PROCEEDINGS, 1933, p. 463.

I caught this species sparingly at Urunga, N. S. Wales, in the first week of September, 1934. This is a new record for N. S. Wales and extends the range of the species about 200 miles southwards.

TARACTROCERA ANISOMORPHA Lower, 1911.

New records are Milmerran, Qld., in October and November (J. Macqueen) and Mitchell, Qld., in January (E. O. Edwards).

TARACTROCERA INA IOLA Waterhouse, 1933.

Mr. V. Lindsay has sent me a series of this butterfly from Mackay caught from 14th March to 15th April, 1934. As a number of the specimens were worn I believe that the best month to search for this race would be February. It has a second brood in September and October. Mr. F. A. McNeill, who caught this race at Hayman Is. in January, 1933, did not find it there in May, 1933, nor in January and June of 1934, although he captured many specimens of *Ocybadistes tanus* on these other trips.

BAORIS BADA SIDA, n. subsp.

Parnara guttatus bada, Waterhouse and Lyell, *Butt. Aust.*, p. 212, figs. 714, 715, 1914; *Baoris guttatus bada*, Waterhouse, *What Butterfly is That?*, p. 263, pl. xxxiv, fig. 12, 1932.

Brigadier W. H. Evans, who is now at work on the Indo-Australian HesperIIDae at the British Museum, writes that from an examination of the genitalia *bada* and *guttatus* are distinct species. In certain parts of India they fly together in the same way as do *Ocybadistes flavovittata* and *O. walkeri* at Sydney and elsewhere in Australia. He considers that Australian specimens constitute a distinct race of *bada*.

The Australian race differs from Indian specimens in having only two spots in areas 2 and 3 of both wings, whereas in typical *bada* the forewing usually has another spot in area 4, and the hindwing discal spots in areas 2 to 6.

The figures quoted depict this race very well. The holotype male, now in the Australian Museum, Sydney, is the specimen used for fig. 714 from Kuranda, Qld., in January. I have it from Kuranda in January, March, June and December; Herberton in January; Mackay in March, and Brisbane in January, April and May.
